bourne, stating that two observers, whom Dr. M. believed perfectly credible, had, independently of each other, witnessed similar protection in that country.

Dr. Kenderdine said he had personally seen a case where a garter snake so protected its young.

Mode of Depositing Ant-eggs.—Mr. McCook stated that a queen of the black carpenter ant, *Camponotus Pennsylvanicus*, which had long been kept in an artificial nest, had once been seen in the act of depositing an egg. The queen was at the time clinging to the side of a hollow in the surface of the earth, almost in a vertical position. The usual body-guard of workers quite surrounded her, continually touching her with their antennæ. The egg was a white cylindrical object, about one-eighth of an inch in length. It was about two minutes in escaping from the body, and as soon as dropped was carried below within the galleries by a worker. The queen was never left by her body-guard, who sought to control her movements by pressing around her, blocking up the path which she wished to take. Frequently more vigorous persuasions were used, an antenna or leg being grasped by a worker, and the queen thus pulled backward. She made no attacks upon her guard, but often stubbornly held her own way; though commonly yielding more or less graciously to her attendants. This colony had been received from the Allegheny Mountains in December, within their formicary in an oak bough, in which they were hibernating, being quite stiff with cold. They immediately revived in the warmth, and were healthy and active during the following spring. The queen survived until September following, and would doubtless have lived longer had she not been neglected during a prolonged absence in summer. She outlived all her subjects, and was certainly more than a year old.

April 29.

The President, Dr. Ruschenberger, in the chair.

Thirty-eight persons present.

Note on the Marriage-flights of Lasius flavus and Myrmica lobricornis.—Rev. H. C. McCook remarked that the first named ant is one of the most familiar objects in nature. Its small dusky-yellow workers may be seen in every American lawn, walk, field, and yard, throwing up its fragile moundlets of sand-pellets, and swarming upon particles of fruit, crumbs, bones, dead insects, and all manner of sweets. It is quite cosmopolitan in its distribution, and is well known in Europe. The following observation of the annual marriage-flight of the sexes was made September 5, 1878, in the vicinity of Philadelphia. The nests observed were

located directly in and on the grassy border of a trodden path in a farmyard. At 4 P.M the males and females were seen coming out and re-entering the gate, amid great excitement on the part of the workers. The females particularly were followed by workers who "teased" them occasionally by gently nipping them with their mandibles. The flight of the young queens was, with few exceptions, made from the top of stalks of grass, where they clung for several minutes, poising themselves, spreading their wings, and swaying up and down. Even to these elevations the workers followed them, hastening their flight by occasional "nips." When the queen rose in flight, there was no evidence of feebleness or inexperience, except, in some cases, a slight tendency to a zig-zag course for the first few yards. The flight was then, and in most cases from the very first also, strong and in a straight course. The insect first rose to a height of about 20 feet, which was soon increased to 40, 50, and even 60 feet (estimated), and this latter height was maintained until the form was lost to sight. He was able to follow the ants in several instances to a distance of more than 300 feet, before they disappeared, at which time they gave no sign of alighting. Some were seen to alight at the distance of 60 and 80 feet; others flew into a large buttonwood tree within 30 feet of the nest.

The flight was in every case solitary, and was in all directions, although generally in the direction of the breeze. The males were in the mean time continually taking flight, urged thereto by teasing workers, each separately, and wholly independent of other males and of the females, as to the time and direction of flight. This fact led Mr. McCook to infer that the pairing of the sexes must have occurred within the nest before departure therefrom. Except in the case of those individuals who lit upon the buttonwood tree, there appeared no opportunity for a meeting after flight. There was nothing in all the facts to suggest the idea of a future consort. The same feature of independent and solitary flight of the sexes had been observed in the swarming of the Shining Slave-maker *Polyergus lucidus*. This is in marked contrast with the habit of some other ants as illustrated in an observation subsequently given.

Before taking flight the *L. flavus* females spent some time in combing and cleansing themselves. A female was placed among the workers of another nest not more than a yard distant from her own, in order to test the treatment of an alien. She was immediately attacked fiercely, and would no doubt have been soon killed had she not been removed. In two formicaries from which the above marriage-flight occurred, it was observed that the doors were closed about 4½ P. M. by bits of dry grass and pellets of soil. They so remained during the night, or at least were found closed in the morning. Three days thereafter several males were found nestled under a chip by the roadside. As soon as the chip was

turned up, two of these were seized by a couple of prowling ants of the species *Tetramorium cæspitum* and *Formica Schauffussi*, and carried off as prey, a suggestion of the common fate of emmet masculines.

His attention had been called to an article in a Hollidaysburg (Pennsylvania) journal, which reported a remarkable swarm of ants that had crossed that town on the 13th September, 1876. He immediately wrote to Rev. D. H. Barron, a citizen of the place, and a gentleman of intelligence and prudence, giving certain points which it was desirable to ascertain. The ants in the course of their flight had come in contact with the mechanics at work upon the tower of the new court-house, whom it was reported they had assaulted vigorously. Mr. Barron visited these men, and after a careful interview communicated the following facts: The flight actually occurred substantially as reported; the day was clear, warm, and calm; the ants came between 10 and 11 A.M., from the direction of the Chimney Rocks, a ridge of the mountain on the southeast of the town. As to numbers, the answers of the men were as follows: "so thick you could hardly see through them;" "swarms;" "about 30,000!" The ants struck the building at the height of about 120 or 125 feet, and certainly assaulted the men. Whether the attack was a bite or a sting they could not tell, but it was something very uncomfortable, and they would not like to have it repeated. The ants were of two sizes, some larger some smaller. One of the men had saved some specimens which were sent to Mr. McCook and proved to be the males and females of *Myrmica lobricornis*, Nylander. These ants can inflict a painful sting, but probably attacked the workmen simply in self-defence; that is, the men happened to obstruct their flight, and naturally vigorously brushed off the insects who lit upon them, who in turn becoming irate applied their stings. Such a vast horde as this swarm contained must have been composed of the winged inmates of many formicaries on the mountain side. This is quite in contrast with the solitary flight of *Lasius flavus* as described in a former note. The pairing of the sexes was probably in the air, or after alighting, as in the case of the agricultural ant.[1] Mr. McCook had taken ants of the same sub-family *Myrmicidæ*, while they were in the act of pairing in the air.

In connection with the above notes on the queen-life of ants, he presented an observation reported to him by Mr. Jos. Wilcox. This gentleman had seen a colony of some species of *Camponotus* occupying a large dead cyprus tree standing in the midst of a cyprus swamp in Florida, at least 600 feet from the shore. The tree was wholly isolated from the land and from all surrounding vegetation except another fallen cyprus tree which leaned up against it. Evidently a fertilized queen had at some time flown from the land to this tree, where she had established the colony.

[1] Agricultural Ant of Texas, p. 143.

The fact is interesting as indicating the origin of formicaries from single queens, as myrmecologists have supposed to be frequently if not commonly the case. Further, as showing the ability of a large number of ants (this nest was reported to consist of vast numbers) to maintain active life under quite circumscribed environment. The insects sheltered in such numbers by old trees may have furnished a large portion of the food supply. The specimens brought by Mr. Wilcox were taken from a colony on the land, which he supposed to be identical with the swamp-tree nest, and were examples of *Camponotus esuriens*, Smith.

Henry W. Stelwagon, M.D., Henry T. Coates, Wm. S. Magee, James F. Magee, J. J. Kirkbride, M.D., and Robert Meade Smith, M.D, were elected members.

The following were ordered to be printed:—